



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/855,255	05/15/2001	Brent W. Edwards	RXSD 1008-1	8977
22470	7590	01/04/2006	EXAMINER	
HAYNES BEFFEL & WOLFELD LLP P O BOX 366 HALF MOON BAY, CA 94019			PHAM, TUAN	
			ART UNIT	PAPER NUMBER

2643

DATE MAILED: 01/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/855,255	EDWARDS ET AL.	
	Examiner	Art Unit	
	TUAN A. PHAM	2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-25, 27, 28, 31-42 and 46 is/are allowed.
- 6) ☒ Claim(s) 1-12, 26, 29 and 30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Applicant's remark, filed on 10/21/2005, with respect to the rejection(s) of claim(s) 1-46 under 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made over Hemkumar (U.S. Patent No.: 6,434,110) in view of Cornelisse (Pub. No.: US 2002/0076072).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-12, 26, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hemkumar (U.S. Patent No.: 6,434,110) in view of Cornelisse (Pub. No.: US 2002/0076072).

Regarding claim 1, Hemkumar teaches a method of processing a far-end signal and a near-end signal to produce a final signal, the far-end signal containing speech, the near-end signal containing speech and background noise, the method comprising (see figure 1):

determining an amplification gain based upon the near-end signal (see figure 1, RX AGC 138, col.11, ln.25-45),

removing a portion of the background noise from the near-end signal to create a noise-reduced near-end signal (see figures 1-3, HPF 158 for reducing the background noise, col.6, ln.22-30),

combining the far-end signal with the noise-reduced near-end signal to create a combined signal (see figure 1, summing 130, far-end NI, col.5, ln.48-67), and

amplifying the combined signal by the amplification gain to create the final signal (see figure 1, RX AGC 138, col.11, ln.25-45).

It should be noticed that Hemkumar fails to teach the amplification gain by using a fitting formula for correction of hearing loss. However, Cornelisse teaches such features (see figure 7A, [0054-0056]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Cornelisse into view of

Hemkumar in order to adjust the loudness by user as suggested Cornelisse at column 1, [0009].

Regarding claim 2, Cornelisse further teaches the method wherein the act of determining the amplification gain includes determining the masking level (i.e., the sound pressure level) of the near-end signal (see col.2, [0027]).

Regarding claim 3, Cornelisse further teaches the method wherein the act of determining the amplification gain includes determining the sound pressure level (energy signal) of the near-end signal (see col.2, [0027], col.6, [0060]).

Regarding claim 4, Cornelisse further teaches the method wherein the act of determining the amplification gain includes determining the sound pressure level above the threshold of hearing audibility (see col.2, [0030]).

Regarding claim 10, Hemkumar further teaches the method wherein the act of removing a portion of the background noise from the near-end signal includes filtering the near-end signal with a high-pass filter (see figure 1, HPF 158, col.6, ln.22-30).

Regarding claim 11, Hemkumar further teaches the method wherein the act of removing a portion of the background noise from the near-end signal includes filtering the near-end signal with a high-pass filter and suppression of the DC component of the near-end signal (see figure 1, HPF 158, echo suppressor, col.4, ln.1-15, col.6, ln.22-30).

Regarding claim 12, Hemkumar further teaches the method wherein the act of removing a portion of the background noise from the near-end signal includes removing a portion of the background noise via the spectral subtraction technique (see col.6, ln.22-35).

Regarding claims 26 and 29, Hemkumar further teaches a program storage device containing computer readable instructions that when executed by a digital signal processor perform the method of claim 1 (see figure 1, col.4, ln.1-15).

Regarding claim 30, Hemkumar further teaches the telephone wherein the telephone is a cellular telephone (see col.4, ln.1-15).

4. Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hemkumar (U.S. Patent No.: 6,434,110) in view of Cornelisse (Pub. No.: US 2002/0076072) as applied to claim 1 above, and further in view of Shennib (U.S. Patent No.: 5,197,332).

Regarding claim 5, Hemkumar and Cornelisse, in combination, fails to teach the NAL-NL1 protocol. However, Shennib teaches such features (see col.3, ln.55-60).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Shennib into view of Hemkumar and Cornelisse in order to apply the use of different type of protocol to meet the characteristic of particular frequency band.

Regarding claim 6-9, Shennib further teaches the NAL-NL1 protocol. Shennib does not teach the Fig 6 protocol, the Cambridge protocol, the Independent Hearing Aid Fitting Forum protocol, and the Desired Sensation Level input/output protocol. However, choosing different type protocol as claimed would not involve any inventive feature since it is just a matter of selecting the type of protocol for a purpose of changing the operation of the amplification gain.

Art Unit: 2643

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Tuan A. Pham** whose telephone number is (571) 272-8097. The examiner can normally be reached on Monday through Friday, 8:00 AM-5:00 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Curtis Kuntz can be reached on (571) 272-7499 and

IF PAPER HAS BEEN MISSED FROM THIS OFFICIAL ACTION PACKAGE, PLEASE CALL Customer Service at (571) 272-2600 FOR THE SUBSTITUTIONS OR COPIES.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have question on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit 2643
December 28, 2005
Examiner

Tuan Pham


DUC NGUYEN
PRIMARY EXAMINER